SanMan User Manual

Data Processing

Robens
Centre for Public and Environmental Health

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Introduction

Sanman is a powerful sanitary inspection management system, tailor designed for the needs of health surveillance personnel and or personnel concerned with the sanitary performance of water supply schemes.

Intended Purpose & Benefits

SanMan is much more than a computerised database. It includes features, which aid in the interpretation of the sanitary inspection data and also includes a wide range of reports.

- allows rapid identification of design, construction, operation and maintenance faults
- identifies appropriate remedial and preventative actions at all levels including individual supplies and for national planners
- allows recurrent problems on a sub-national and national level to be identified and facilitates management decision making
- allows a rapid appraisal of investment priorities at local, regional and national levels
- provides an ongoing record of water quality management of individual supplies and for aggregated national and sub-national data.
- summarisation of fault information by both district/province and on a national level allowing you to compare performance in different districts/provinces

System Requirements

SanMan can be run on a standalone PC or on a network. If the network has a server, it is recommended that the data and reports reside on the server and that each station has SanMan program installed on its local hard disk. The minimum system requirements are as follows:

- We recommend a Pentium-based system or higher
- 8 megabyte (Mb), free hard drive space for installation
- Windows 95, Windows 98 or Windows NT 4
- A mouse or another Windows compatible pointing device.
- VGA graphics or better, (minimum 800 X 600 resolution)
- A Laser or InkJet Printer

Memory Requirements:

- 16 Mb RAM, (Windows 9x) or 32 Mb, (Windows NT4)

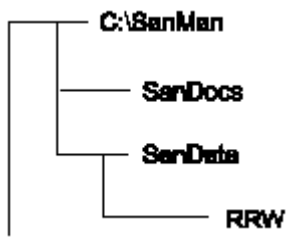
Installation

SanMan comes with its own install and uninstall utilities

Installing Sanman

1. Insert the disk labelled **Disk 1** into the floppy disk drive
2. Click the **<Start>** button on the task bar, then select the **'Run'** option
3. In the **'Open'** control, type **A:Setup.exe**, then click the **<OK>** button
4. Follow the installation instructions that appear on the screen

By default SanMan will create an installation folder called **'SanMan'** on the **C:** drive of your PC, with the following subfolders



SanMan application files

This help file

All the data tables and index files, (This is the folder you should back up)

The reports used by SanMan

Getting Help

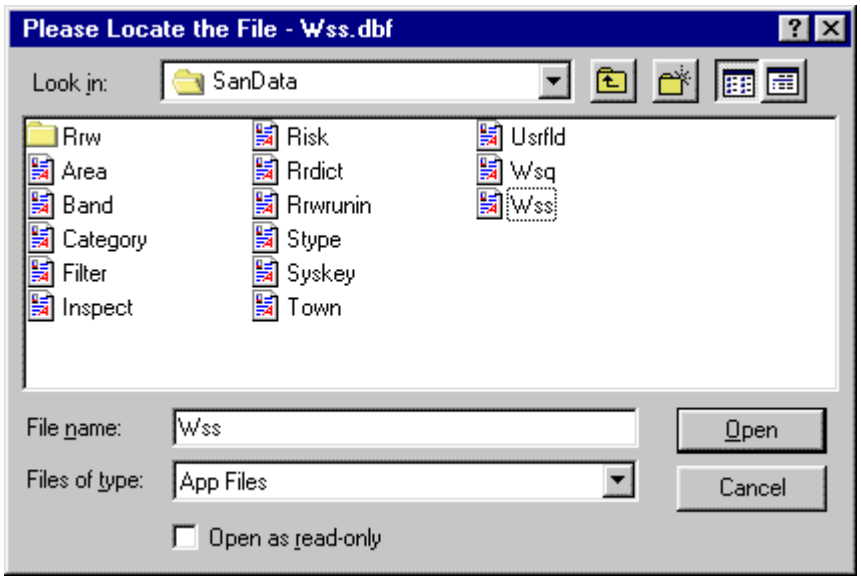
If you need help with SanMan the preferred way is to contact us by email datapro@dial.pipex.com

If you cannot email us you may also contact us as follows, Data Processing, Tel/Fax + 44 1685 874051

Starting SanMan

Click the **'Start'** button on the task bar, click the **'Programs'** item.
Click the **'Sanman'** sub-group, then click the **'SanMan'** item.

The application will start and you will be presented with the opening splash screen. Click the **<OK>** button or press the **<Enter>** key to proceed.



In the event the **'Please Locate the File..'** dialogue window appears, it means that SanMan cannot locate some key files.

Click on the list box and navigate to the location of the **'SanData'** folder, (a sub folder of **'SanMan'**) and select the file requested, (WSS.DBF). Then click the **<Open>** button.

It may be necessary to repeat this procedure with a report file. Repeat the above and navigate to the **'\SanMan\Sandata\RRW'** folder. Again select the file requested (Ranked Sanitary Risk.RRW).

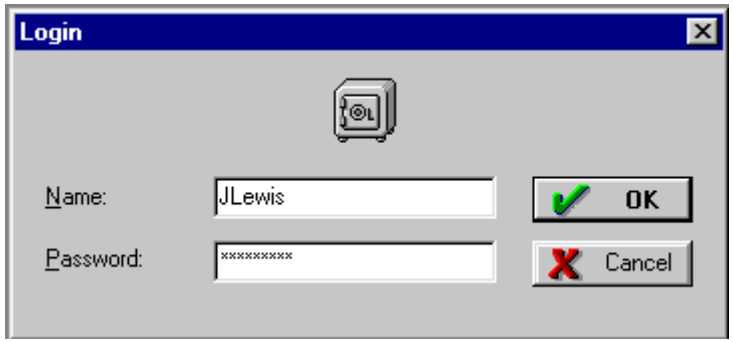
SanMan now knows the location of the data and report files and stores this information for future use. You will not have to repeat this procedure the next time you start SanMan. This dialogue will appear if you move the data and report files to a new location, for example to a hard disk on a server.

Re-indexing Records

The very first time you start Sanman, it will automatically create the data index files it requires. After a few seconds the Index Creation dialogue window will appear informing you that the indexing process is complete. Click the **<OK>** button to close this dialogue.

Logging On

The next window to appear is the Login Dialogue.



The very first time you login

Type '**Administrator**' in the Name control

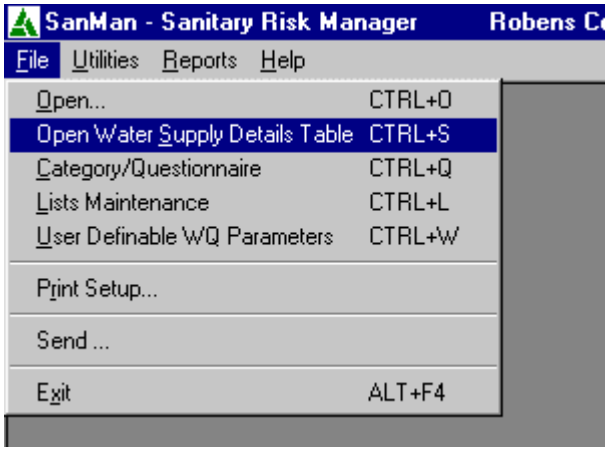
Type '**openthedoor**' in the Password control

Before proceeding any further you should change the password to something different, otherwise any user reading this manual can get full access privileges.

If you make a mistake you are allowed three attempts before the system shuts down. Only the system administrator should have full access privileges, (see System Administration).

Using the Menus

Once you are logged on you will be presented with the main shell window which contains a menu beneath the window caption.

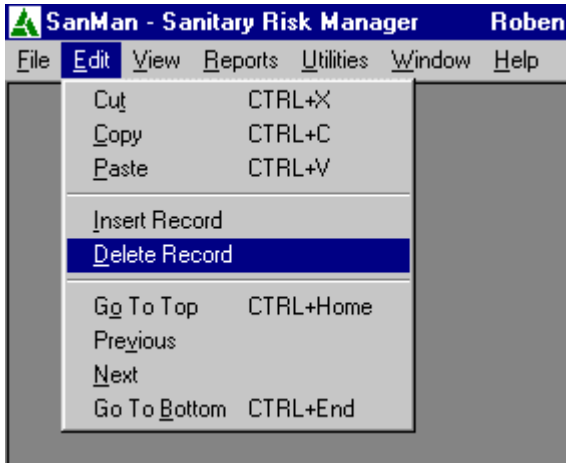


Select the '**File**' Menu option and the adjacent pop down menu will appear.

Select a menu item of your choice or press the **<Esc>** key to close the menu. Alternatively select another drop down menu from the other menu items.

In the illustration left the user has selected the '**Open Water Supply Details Table**' option, which will open this window inside the shell window. We could have also opened this window by pressing **<Ctrl>** + **<S>** key combination without using the menu.

The hot key combinations are listed against the corresponding menu items.



The menus are dynamic, this means that the contents of the menu change depending on what window the user has currently open.

The illustration left shows another menu, which has two additional menu items, which were not available in the previous menu, (Edit and View)

Some menu items will not be available or inactive. When an item is unavailable the item is usually dimmed or greyed as opposed to an active item, which is normally black. Again the activity of menu items (and toolbar buttons and command buttons), is governed by what the user is doing. For example when adding a new water supply scheme record, many items are inactive until the new record is saved. After saving, the items then become active again.

Windows and their Controls

For users new to Windows based data management systems, it is worthwhile familiarising oneself with the types of controls available, (a control is a device on the window for accepting data input or activating some process). A typical data window is illustrated in the SanMan main window. Controls can be classified into 2 groups

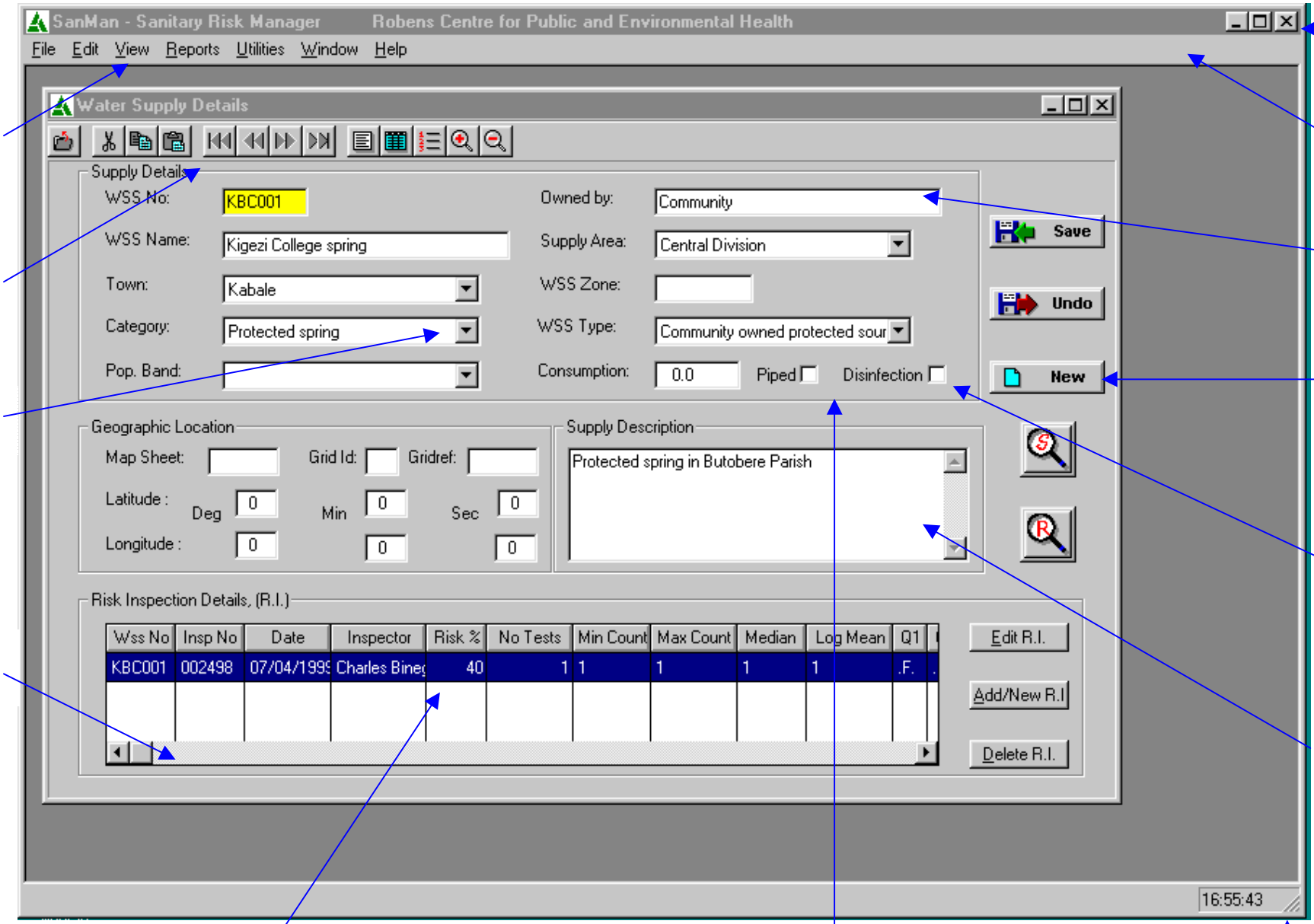
Data Edit Controls

Single Line Edit	-	Simple text and numeric input
Multi Line Edit	-	Variable length memo fields
List & Combination Boxes	-	Normally used for restricting data input to values present in a list
Check Boxes	-	Normally reserved for True/False Data Processing
Radio Buttons	-	Reserved for mutually exclusive data e.g., marital status either single, married, divorced or widowed
Browse Controls	-	Used to display data in tabular fashion

Push Button Controls

Tool Bar Buttons	-	Associated with menu items and serve as a shortcut to the menu, (see Toolbar Buttons)
Command Buttons	-	Usually associated with manipulation of the data, (see Command Buttons)

SanMan Main Window


SanMan - Sanitary Risk Manager
Robens Centre for Public and Environmental Health
File Edit View Reports Utilities Window Help
Water Supply Details
Supply Details
WSS No: KBC001
WSS Name: Kigezi College spring
Town: Kabale
Category: Protected spring
Pop. Band:
Owned by: Community
Supply Area: Central Division
WSS Zone:
WSS Type: Community owned protected sour
Consumption: 0.0
Piped
Disinfection
Save
Undo
New
Geographic Location
Map Sheet:
Grid Id:
Gridref:
Latitude : Deg 0 Min 0 Sec 0
Longitude : 0 0 0
Supply Description
Protected spring in Butobere Parish
Risk Inspection Details, (R.I.)
Wss No | Insp No | Date | Inspector | Risk % | No Tests | Min Count | Max Count | Median | Log Mean | Q1
KBC001 | 002498 | 07/04/1999 | Charles Bine | 40 | 1 | 1 | 1 | 1 | 1 | .F.
Edit R.I.
Add/New R.I
Delete R.I.
16:55:43

Command Menu

Tool Bar

List Box

Scroll Bar

System Controls

Shell Window

Single- Line Edit Control

Command Button

Check Box

Multi Line Edit Control

Resize Window Control

Risk Inspection Details Browse Control

Water Supply Scheme Details Master Form

Toolbar Buttons

File Close - Closes the current window

Cut - Click left mouse button and hold down whilst dragging to select text. Then click this button to cut text to clipboard.

Copy - Click left mouse button and hold down whilst dragging to select text. Then click this button to copy text to clipboard

Paste - Click left mouse button and hold down whilst dragging to select text. Then click this button to copy text to clipboard

Go Top - Move to the first record in the data table.

Go Next - Move to the next record in the data table.

Go Previous - Move back to the previous record in the data table.

Go Bottom - Move to the last record in the data table.

Form View - Change from browse view and display the currently highlighted record in form view.

Browse View - Change from form view and display a table of records in browse view, (like a spreadsheet)

Auxiliary Lists - Get access to the auxiliary data tables used to populate the pick lists.

Filter - Apply a filter to the data table to limit records to those matching your filter criteria, e.g. a specific district etc.

Clear Filter - Remove any filter and display all the records in the data table.

Command Buttons

Save - Commits all the changes you have made to the data to the underlying data table. When adding a new record, all other command buttons may be disabled, until you save the new data.

Undo - clicking this button will undo any changes you have made to this records data. The contents of the controls are restored to their original state, **(except for any memo fields)**.

New - adds a new record to the master data table. This will result in the key field dialogue window appearing where you will be required to enter a unique name or identifier, before you are allowed to enter the new data.

Edit R.I. - causes the Sanitary Risk Inspection window to appear, showing details of the currently highlighted inspection record.

Add/New R.I. - adds a new record to the related child data table. As new records are added these are displayed in the browse or details window

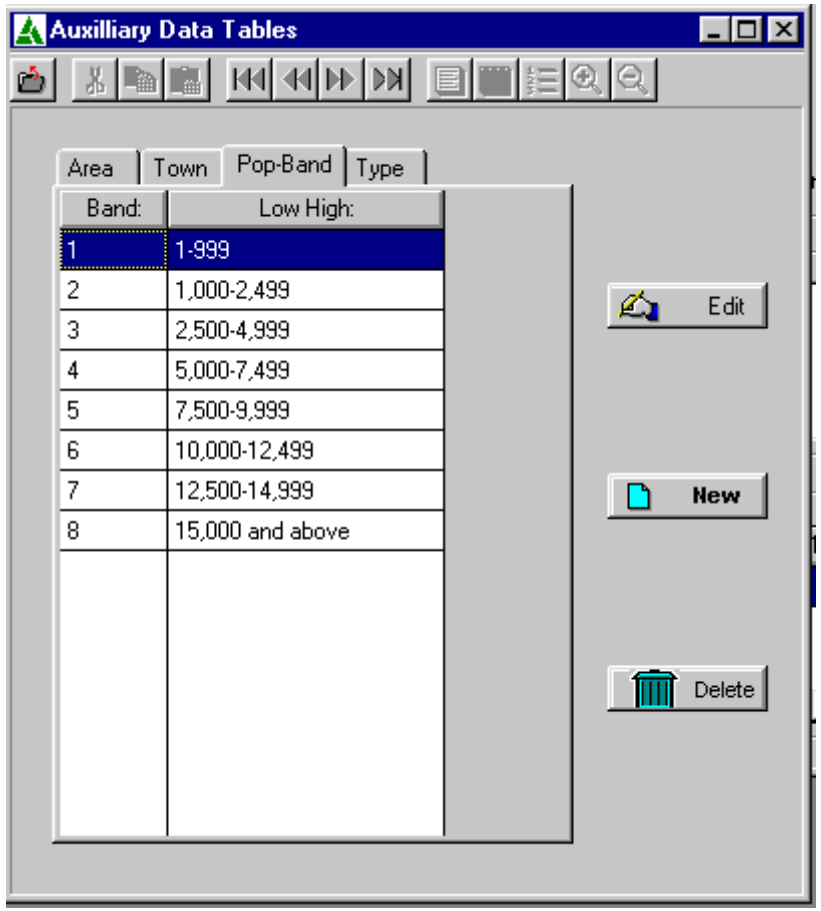
Delete R.I. - this deletes the currently highlighted inspection record. You will be asked to confirm the deletion, and any water quality records connected to this inspection record will also be deleted.

Wildseek - use this to search for text embedded in any field, (except memo fields). For example, '*Lon' matches London and Babylon. The asterisk (*) is a wildcard character that stands for any group of characters. If any matching records are found they will appear in a pop-up window.

Repeat WildSeek - redisplays the results of the last wildseek. Double click with the mouse to select the record you wish to view.

Setting up the Auxiliary Lists

Before entering data about water supply schemes it will save time if we enter data into the related tables. These tables supply the data used in the pick lists. The main advantage of using pick lists or list boxes to enter data is that the accuracy of the input is increased, (no misspellings) and data is entered in a consistent manner. There are five list boxes used in the water supply scheme window, supply area, town, pop_band, WSS type and category. Category plays a vital role in Sanman and is discussed separately, (see Creating Sanitary Risk Questionnaires). To open the auxiliary lists, select '**Lists Maintenance**' item in the '**File**' menu, or by pressing **<Ctrl> +<L>**. The following '**Auxiliary Data Tables**' dialogue window will appear:



This is a special kind of data dialogue window known as a **Tabbed Dialogue**. This particular window has four tabs Area, Town, Pop-Band, and Type. The current Tab is Pop-Band and we can see that eight records have already been added to this table. Clicking the **<New>** button would add a new record to the Pop-Band table, (population band not pop groups ☺).

To add a new record or to edit a record in the Town table we first select that table by clicking with the mouse on the Tab labelled '**Town**'

Water Supply Areas/Districts

This table is used to populate the list box control on the Water Supply Details window labelled '**Supply Area**', which in turn is linked to the '**Area**' field in the '**WSS**' data table. Add entries to this table to geographically group water supply schemes into areas, districts or provinces etc. This field is used in some of the reports to group results together by area.

Towns

This table is used to populate the list box control on the Water Supply Details window labelled '**Town**', which in turn is linked to the '**Town**' field in the '**WSS**' data table. Add entries to this table to cover all the Towns/Villages where water supply schemes are located. This field is used in some of the reports to group results together by town.

Population Bands

This table is used to populate the list box control on the Water Supply Details window labelled '**Pop. Band**', which in turn is linked to the '**Pop_Band**' field in the '**WSS**' data table. This field is intended to allow one to give an insight into how big or small a water supply scheme is. Obviously sanitary defects in large schemes have greater health risk implications than schemes serving a handful of people.

Water Supply Types

This table is used to populate the list box control on the Water Supply Details window labelled '**WSS Type**', which in turn is linked to the '**WSS_Type**' field in the '**WSS**' data table. You can use this field to as a sub-category. For example, if the main category is 'Piped Water Supply', then the sub-category could be 'Govt. Owned PWS' or 'NGO PWS', "Private PWS" etc. This may prove useful if you want to compare say government schemes with commercially operated schemes.

New List Item

Open the '**Auxiliary Data Tables**' dialogue window by using the file menu, <Ctrl>+<L> hot key combination, or if the Water Supply Details window is already open, by clicking the auxiliary list button on the toolbar. Select the Tab for the table that you wish to add a new record to.

Click the '**New**' button. In the dialogue box that appears type in the new entry. If adding a new record to the water supply type or pop-band tables you will need to supply a unique code in addition to the description required. Sanman verifies that the new entry is unique before actually adding the entry to the data table. It displays an error message if the entry is already present in the list.

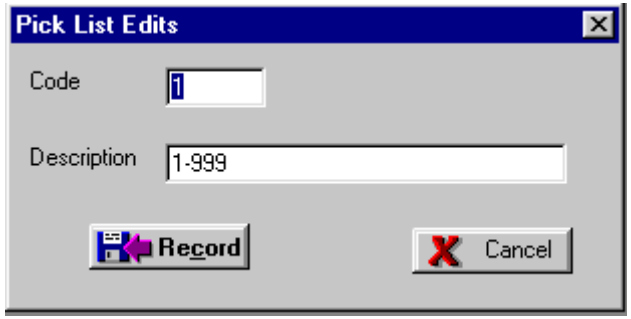
When finished adding records close the dialogue window by clicking the system close button in the top right corner of the window.

Don't worry about entering the data in any kind of order, the lists are automatically sorted alphabetically. If you make a mistake you can edit it to correct it or delete it if you do not require it.

Editing a List Item

Open the '**Auxiliary Data Tables**' dialogue window by using the file menu, <Ctrl>+<L> hot key combination, or if the Water Supply Details window is already open, by clicking the auxiliary list button on the toolbar. Select the Tab for the table that you wish to edit.

Select the record that you wish to edit, (you may need to scroll through the list if it is very long using the vertical scroll bars). Click the **<Edit>** button and the '**Pick List Edits**' dialogue window will appear.



Change the entry as desired and when finished click the '**OK**' button. When you click this button the changes are saved and also cascaded to the WSS data table. So for example, if the text in the description control in the illustration left was changed to say '1 - 99', all the records in the water supply detail table which had a code of 1 would now display '1 - 99' instead of '1 - 999'. Similarly, if the code were changed to '1A' then all matching codes in the WSS table would be updated to this new value.

!!!Caution editing a list item can effect many records in the water supply details table!!!

Deleting a List Item

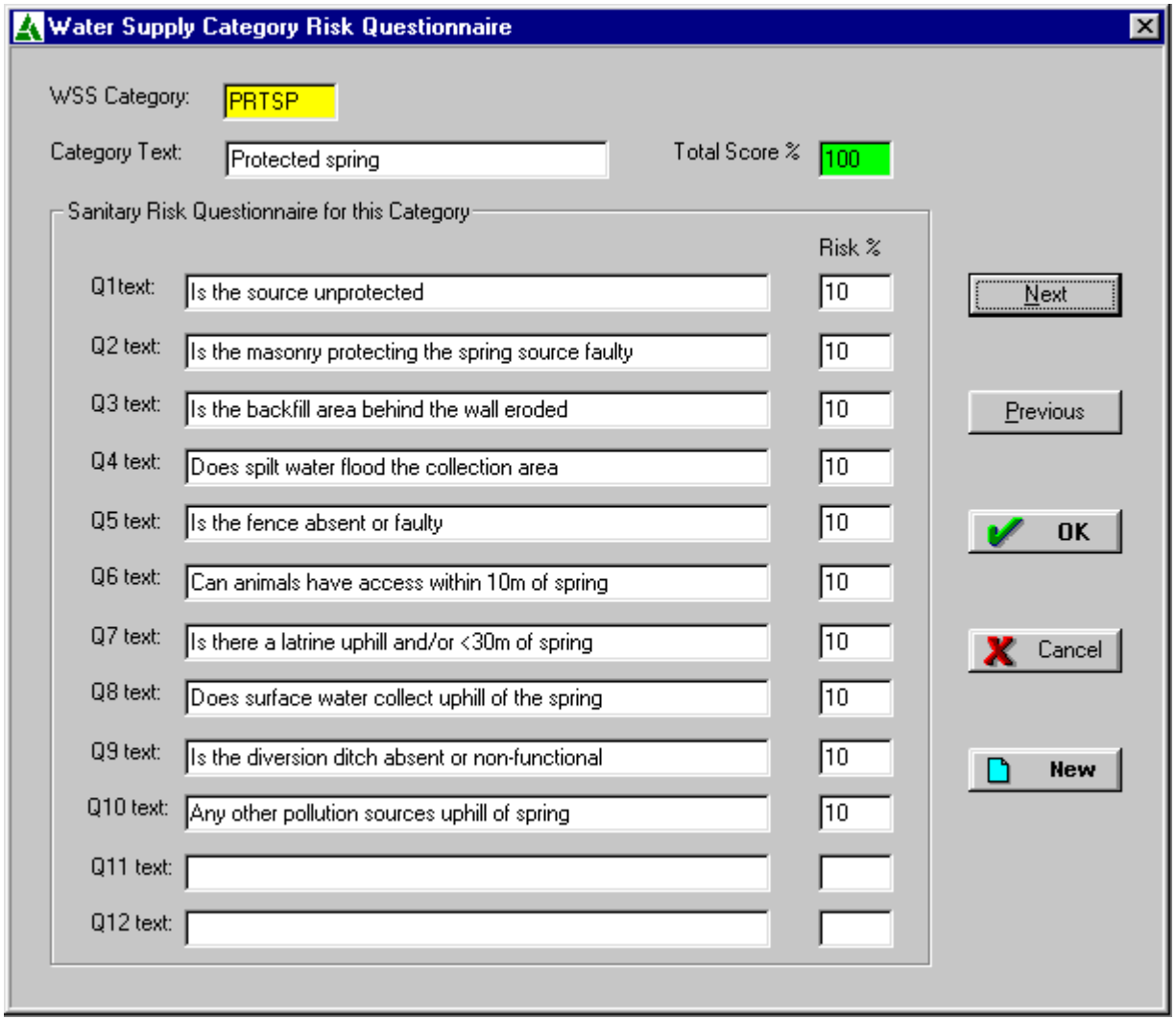
Open the '**Auxiliary Data Tables**' dialogue window by using the file menu, <Ctrl>+<L> hot key combination, or if the Water Supply Details window is already open, by clicking the auxiliary list button on the toolbar. Select the Tab for the table that you wish to edit.

Select the record that you wish to delete, (you may need to scroll through the list if it is very long using the vertical scroll bars). Click the **<Delete>** button. You will be asked to confirm the deletion. If you delete a record the corresponding entries in the WSS data table will no longer have a corresponding entry in their respective pick list.

!!!Caution deleting a list item can leave many records in the water supply details table without a corresponding list item!!!

Creating Sanitary Risk Category Questionnaires

This is an essential data table. Unless the user defines the categories that cover the different types of water source to be monitored, then it will not be possible to select these from the drop down list in the main water supply data table and no sanitary inspection form can be prepared. However, once a code has been established for the category, this can be changed, but not deleted. Therefore take care in defining water source categories.



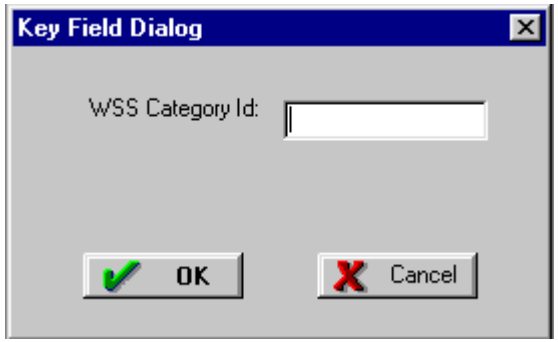
The questionnaire takes the form of a series of up to 12 questions that are answered with a 'Yes' or 'No'. **The questions should be phrased so that an affirmative response indicates that there is some sanitary risk attached**. For example 'Q1' in the illustration could have been written as, 'Is the source protected?'. A reply of 'Yes' to this question would not constitute a sanitary risk. Hence the question must instead be phrased as, "Is the source unprotected'

To each question assign a percentage risk score. You are free to assign whatever risk score you wish. So for example, you can give all questions equal weight, (as in the illustration) or weight those questions that you perceive as having a greater sanitary risk. If the total score is less than or greater than 100% the colour of the '**Total score %**' control will either be blue or red to warn you. You are of course free to use whatever value you wish.

You are not obliged to use all twelve questions, simply use as many as you think necessary.

Adding New Questionnaire

Select **'Category/Questionnaire'** item in the **'File'** menu, or press **<Ctrl> + <Q>** hot key combination to open the **'Water Supply Category Questionnaire'** dialogue window. Next click the **'New'** button and confirm that you wish to add a new record in the dialogue box that pops up.



The next dialogue to appear is the '**Key Field**' dialogue, (see illustration left).

Type a unique category ID, (up to six alphanumeric characters), this is the value that will be recorded in the WSS data table for all water supplies with this category. You could use '000001' etc but it may help if you enter something that is more meaningful such as 'PRTSP'. This will be especially beneficial if you export the data and will help you to recognise the category. SanMan will not accept a code that has been used before, so there is no danger of duplicate entries.

Next you will be presented with a blank questionnaire, with the **WSS Category**' containing the entry you made in the key field dialogue. Design the questionnaire appropriate to the category, and finally click the **'OK'** button to save it.

Editing an Existing Questionnaire

Select **'Category/Questionnaire'** item in the **'File'** menu, or press **<Ctrl> + <Q>** hot key combination to open the **'Water Supply Category Questionnaire'** dialogue window. Locate the questionnaire that you wish to edit by using the <**Next**> and **<Previous>** buttons to skip forward or backward through the data tables. Make any changes you wish and finally click the **<OK>** button to save it. A word of caution, unless you are sure that you have not selected this category for any water supply detail records, then you should not change the category to something completely different. If you do then you risk having sanitary inspection records relating to a completely different set of questions than are currently set for that category. It is preferable to create a new category than change the purpose of an existing one.

SanMan does not allow you to delete categories since this could result in orphaned inspection records.

Water Supply Scheme Records

The water supply scheme, (WSS) table is the main table in SanMan. For each WSS record, there will probably be many sanitary inspection records and for each inspection record there could be one or more water quality results, (father, child and grandchild).

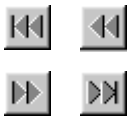
The main purpose of the WSS table is to store information about each water supply scheme, (see 'The Main WSS Window'). Each WSS record has a unique WSS No: which is the key field used to relate it to records in the inspection table. Records are stored in the WSS table in alphabetic WSS No: order. Other fields relate to information about its name, town, sanitary risk category, population band served, owner, area, zone, consumption (in litres per capita per day), whether the scheme is piped and whether the water is disinfected or not. Provision is made for information about its geographic location, (latitude and longitude etc.) and a special variable length field where you may enter any notes regarding the particular scheme. The notes may be as detailed as you wish, there is no constraint on length.

Adding a New WSS Record

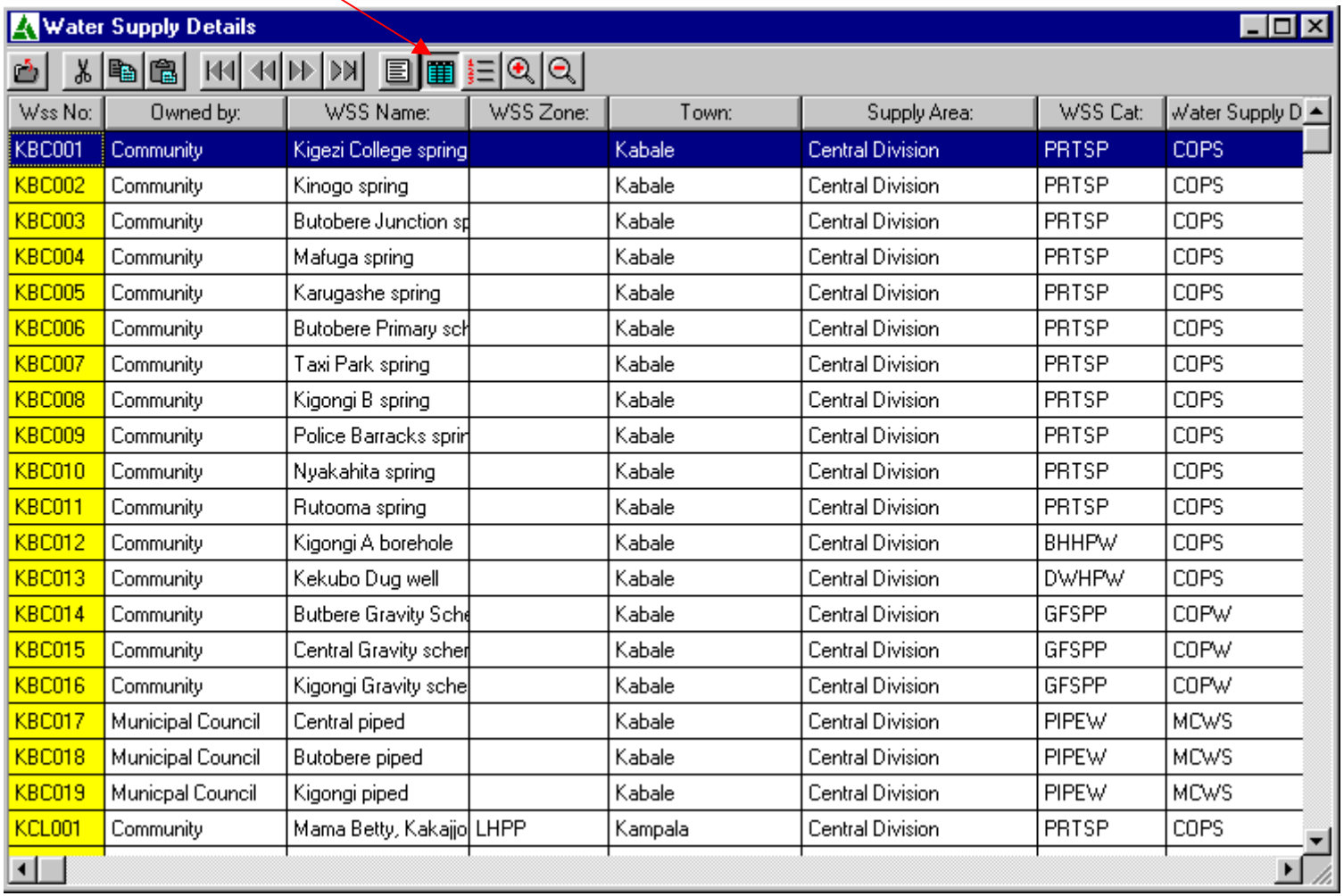
Select the **'Water Supply Details Table'** item in the **'File'** menu, or press **>Ctrl> + <S>** hot key combination to open the **'Water Supply Details'** window. Next click the **'New'** button a dialogue box will appear asking you to confirm that you want to add a new record. The **'Key Field'** dialogue below will appear. Type a unique WSS No:, any 6 digit alphanumeric code will do but it will probably pay dividends if you use a more systematic numbering method. For example you could uses a combination of letters and numbers such as KBC001, KBC002 etc. Don't worry about remembering what number to use next in a sequence of numbers as SanMan will tell you the last number in the sequence if you enter the first 3 or 4 digits in the sequence. Sanman will not allow you to enter any WSS No: that has already been used since this would break the integrity of the relationship between the various data tables.

Once you have entered a unique WSS No: you will be presented with a blank form in which you can enter the details about the new scheme. Use the **<Tab>** key, (the key immediately left of the letter 'Q'), to move forward through the data controls or the **<Shift> + <Tab>** key combination to move back. You may not be able to complete all the details but you should at the very minimum enter its name, select its area, town and category. If the information required is not available in any of the pick lists, you can call up the auxiliary lists by clicking the list's button in the toolbar and add the item you require. After adding a new item in the list it should be immediately available to you in the pick list. When you have finished entering the information click the **<Save>** button to commit the data to the WSS table. This will restore many of the command buttons to their active state, (inactive buttons are greyed out). You could now enter sanitary risk inspection data for this scheme if you wish, (see 'Adding Inspection Records').

Editing an Existing WSS Records



If the water supply details window is not already open, select the '**Water Supply Details Table**' item in the '**File**' menu, or press **>Ctrl> + <S>** hot key combination to open the window. Initially there may not be many records in the WSS table and you can use the tool bar buttons to skip through the records to locate the record you wish to edit. Alternatively you can change the display from '**Form View**' to '**Browse View**' by clicking the browse button in the toolbar. This will change the display to a table with many records visible.



Wss No:	Owned by:	WSS Name:	WSS Zone:	Town:	Supply Area:	WSS Cat:	Water Supply D
KBC001	Community	Kigezi College spring		Kabale	Central Division	PRTSP	COPS
KBC002	Community	Kinogo spring		Kabale	Central Division	PRTSP	COPS
KBC003	Community	Butobere Junction sp		Kabale	Central Division	PRTSP	COPS
KBC004	Community	Mafuga spring		Kabale	Central Division	PRTSP	COPS
KBC005	Community	Karugashe spring		Kabale	Central Division	PRTSP	COPS
KBC006	Community	Butobere Primary sch		Kabale	Central Division	PRTSP	COPS
KBC007	Community	Taxi Park spring		Kabale	Central Division	PRTSP	COPS
KBC008	Community	Kigongi B spring		Kabale	Central Division	PRTSP	COPS
KBC009	Community	Police Barracks sprir		Kabale	Central Division	PRTSP	COPS
KBC010	Community	Nyakahita spring		Kabale	Central Division	PRTSP	COPS
KBC011	Community	Rutooma spring		Kabale	Central Division	PRTSP	COPS
KBC012	Community	Kigongi A borehole		Kabale	Central Division	BHHPW	COPS
KBC013	Community	Kekubo Dug well		Kabale	Central Division	DWHPW	COPS
KBC014	Community	Butbere Gravity Sche		Kabale	Central Division	GFSPP	COPW
KBC015	Community	Central Gravity scher		Kabale	Central Division	GFSPP	COPW
KBC016	Community	Kigongi Gravity sche		Kabale	Central Division	GFSPP	COPW
KBC017	Municipal Council	Central piped		Kabale	Central Division	PIPEW	MCWS
KBC018	Municipal Council	Butobere piped		Kabale	Central Division	PIPEW	MCWS
KBC019	Municpal Council	Kigongi piped		Kabale	Central Division	PIPEW	MCWS
KCL001	Community	Mama Betty, Kakajjo	LHPP	Kampala	Central Division	PRTSP	COPS

You can use the 'Up' and 'Down' arrow keys to move one row at a time. Use the 'Page Up' and 'Page Down' keys to move a screen full at a time, or use the vertical scroll bar at the right edge of the window. When you see the record you wish to edit, left click the mouse on the row containing that record, then click the 'form view' button to edit the record.

With many records, locating the one you want will not be practical by the methods described above. Fortunately, SanMan has made provision for this and you can use a 'WildSeek' to quickly locate a particular record or set a filter to limit the records displayed to a

more manageable number. When you have finished editing the WSS record save your changes by clicking the <**Save**> button to commit the changes to the table or if you change your mind click the <**Undo**> button to restore the form to its original state, (only works if you have not already saved).

Editing the WSS No:

You will no doubt notice that SanMan does not allow you to directly edit the WSS No: since this is a key field used to link the WSS table to the inspection table. The WSS No: data control is a read only control, which prevents anyone accidentally changing the key value. To edit the WSS No, click the **right mouse button** anywhere on window background, or press the <**Ctrl**> + <**K**> hot key combination. This pops up the '**Edit Key Field**' dialogue window

This window displays the old value and a control where you can enter the new value. Enter the new WSS No: and click the '**OK**' button to save, or the '**Cancel**' button to abort the change. When you click 'OK', SanMan first checks to see if the new code already exists in the table. If it does not exist, it first updates every inspection record in the inspection table relating to the old WSS No: to the new one before updating the WSS record.

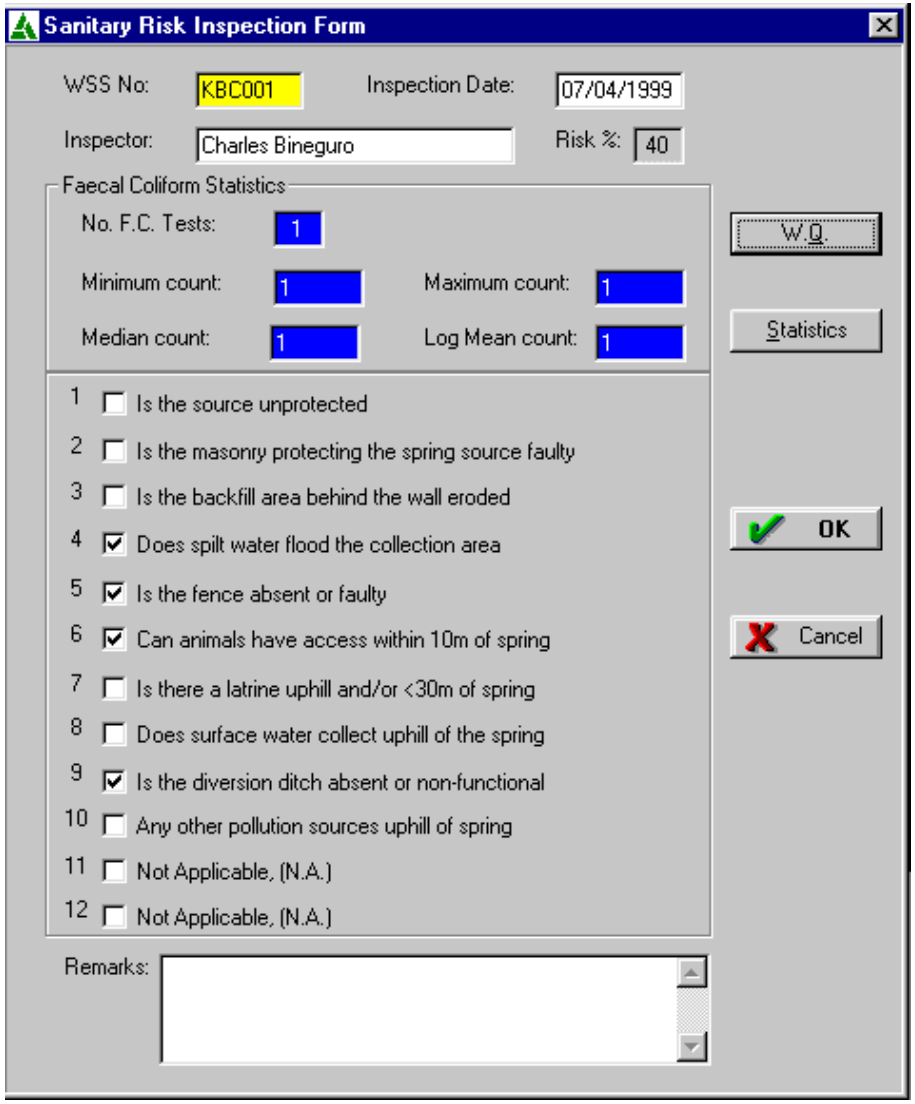
Deleting a WSS Record

When we delete a WSS record we need to ensure that we don't leave orphaned records in the inspection and water quality tables. Thus SanMan has to first step through every inspection record, delete all water quality records related to that particular inspection, before deleting the inspection record. Repeat this process with the remaining inspection records, before finally deleting the WSS record itself. **Only the system administrator is authorised to delete a WSS record**, requests to delete from other users will be denied unless the administrator has given them the necessary access privileges.

!!! Caution deleting a WSS record will cascade the deletion to records in the inspection and water quality tables!!!

Sanitary Risk Inspection Records

Once the main water supply details data table has been set up, new data from routine monitoring programmes can be put into the database without repeating the process of establishing the water supply number, category allocation and other general details about the source or supply. Thus, once the source or supply has been established any new data for that source can be put into the database quickly and simply. In order to input your data, you need to open the water supply details data table. To do this, select the **'Open Water Supply Details Table'** in the file menu. This will then show the records stored in the database to date. These are ordered by the water source number and are shown in alphabetical order. In order to put in inspection data for a particular water source, you will need to move through the records in order to find the particular source or supply required. Alternatively a quicker method, (especially when the data table has many records), is to use a Wildseek, to locate the record, (see 'Locating Records with Wildseek')



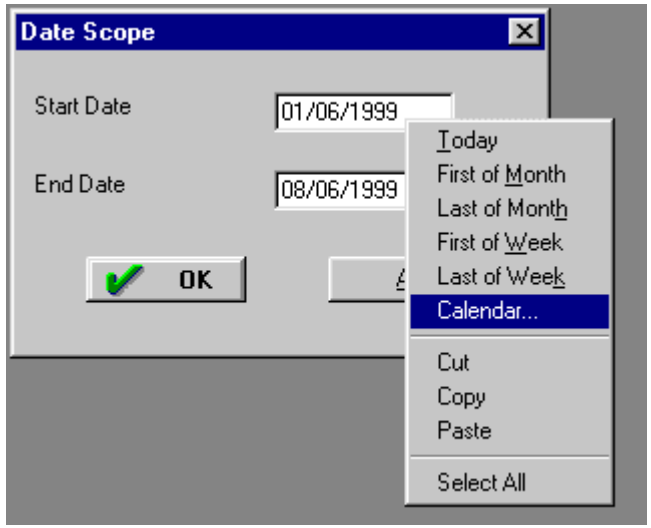
At the bottom of the 'Water Supply Details window' there is a sub-form showing the 'Risk Inspection Details, (RI)' in a tabular or browse view. If you have not yet added any inspection records, you will not see any data only the column headings. To the immediate right of this sub-form are 3 buttons that are used to add, edit and delete RI records.

To add new data, click on the button marked '**Add/New R.I**.' this will cause the **'Sanitary Risk Inspection Form'** window to appear. This has the sanitary inspection form relating to the category of the water source or supply with the questions listed and a series of small, check boxes to the left. There is a check box for each question. A total of 12 question boxes will appear, although there may be less questions, those which are not used will have 'Not Applicable, N.A.' in the question text.

Note: you cannot modify the questions in the sanitary risk inspection data field, to do this you would have to change the category/questionnaire data table.

Each time you enter a risk inspection, the programme will automatically give it an inspection number that is sequential from the first inspection put into the database under any record. Thus, the inspection numbers in each record are unlikely to be sequential to each other. This inspection number is used as a link to the water quality data table. Water quality results associated with the risk inspection are thus in turn related to the WSS record in a grandchild, child, and father relationship.

The window shows the water supply number in the edit control at the top left. The yellow background denotes that this is a read only control, that you cannot alter, as this is a key field that can only be modified in the main water supply details data table. The next field is a date field called 'Inspection date'. The date will default to the date you add the RI record and may therefore need to be changed to the date that the sanitary inspection was carried out. This date control (and all other date controls), is linked to a calendar. To open the calendar, double click the control with the left mouse button or right-click the control to pop-up a menu. The pop-up menu presents you with a series of choices, including the calendar. Selecting the 'Calendar' Menu item pops-up the calendar dialogue window



If the date control is initially empty, then the calendar will default to the system date, (the date stored internally in the PC). If it is not empty the calendar will be set at that date. To change month, either click the small arrows at the top left or right to increment and decrement the month, or left click the months text, 'June', to drop down a pick list to choose the month.

To change the year, left click the number (1999), and the use the controls to increment or decrement the year. Finally double click the day of the month you want, this will paste that date into the underlying date control and close the calendar, alternatively close the calendar without selecting a date. You can of course dispense with the calendar altogether and simply type in the date in a **'dd/mm/yyyy'** format, e.g., '14/06/1999'.

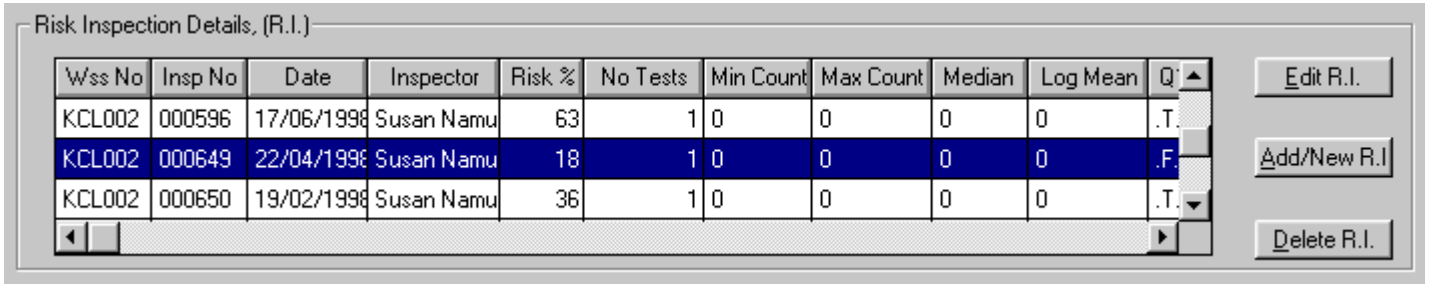
To reach the next field, press the tab key or move the mouse cursor to the start of the field. The next field is entitled ‘Inspector’ and is for the name of the person who carried out the sanitary inspection. Type in the inspector's name. Try to ensure that these are consistent with previous entries of the same person as at some time you may wish to review all the inspections carried out by an individual. The next controls with a grey background is also read only, as you fill in the questionnaire this is automatically calculated based on the number of ‘yes’ answers to the sanitary risk factor questions and the percentage risk accorded to each factor in the category/questionnaire data table.

The following five controls with a blue background are read-only and are used to display a statistical summary of bacteriological quality results of water quality records related to this inspection record. These will initially be blank. After entering water quality data, when you click the **'Statistics'** button, SanMan will automatically calculate the number of tests performed, minimum count, maximum count, median count and log mean from the water quality table.

Go through the field sanitary risk inspection form. When the field sanitary inspection form has identified that there is a risk (a ‘yes’ answer to the sanitary risk factor question) then click the box next to that questions. The check box will show a small 'tick' to indicate that the statement is 'True'. If you make a mistake simply click the check box a second time to clear the tick. Once you have put in all the yes answers by clicking the check boxes, you will have an overall risk for the water supply or source. If there is any other information provided by the field staff in the form of comments, there is a text box at the very bottom of the screen where you can type these comments in. The sanitary inspection part of the risk inspection is now complete. If you have any water quality data table available relating to this inspection, this could be entered now.

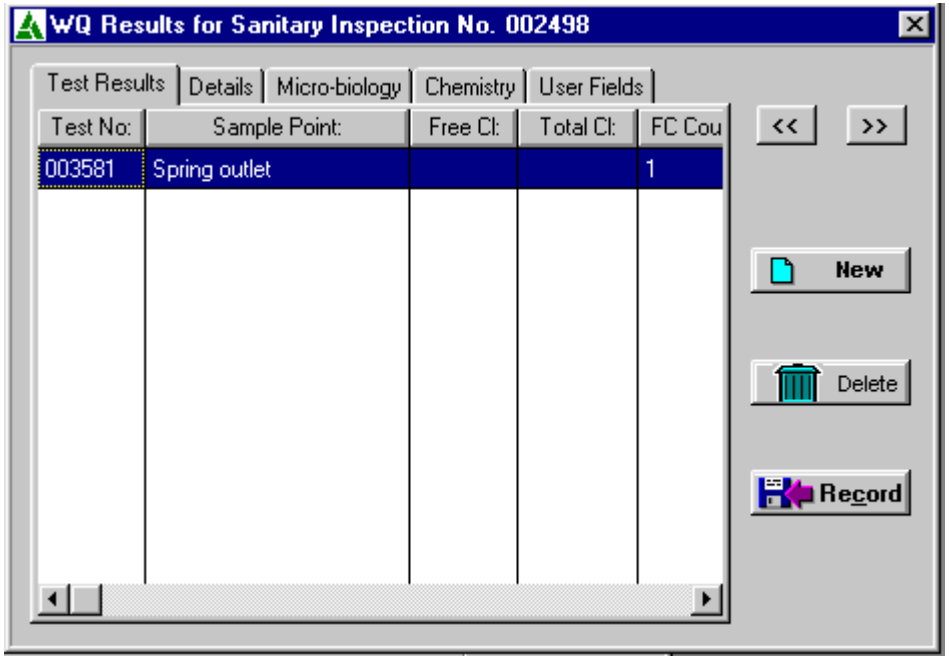
Editing & Deleting Inspection Records

To edit or delete an existing R.I. record, first locate the water supply record, then left click the row in the 'Risk Inspection Details ' sub-form to highlight the record desired. If necessary use the vertical scroll bar at the right of the sub-form to view records not currently visible. To edit the R.I. record click the <Edit R.I.> button, this will display the 'Sanitary Risk Inspection Form'. To delete the record, click the <Delete R.I.> button. Confirm the deletion in the pop-up dialogue. **Please Note: deleting a R.I. record also deletes all associated water quality records!**



Adding/Editing Water Quality Records

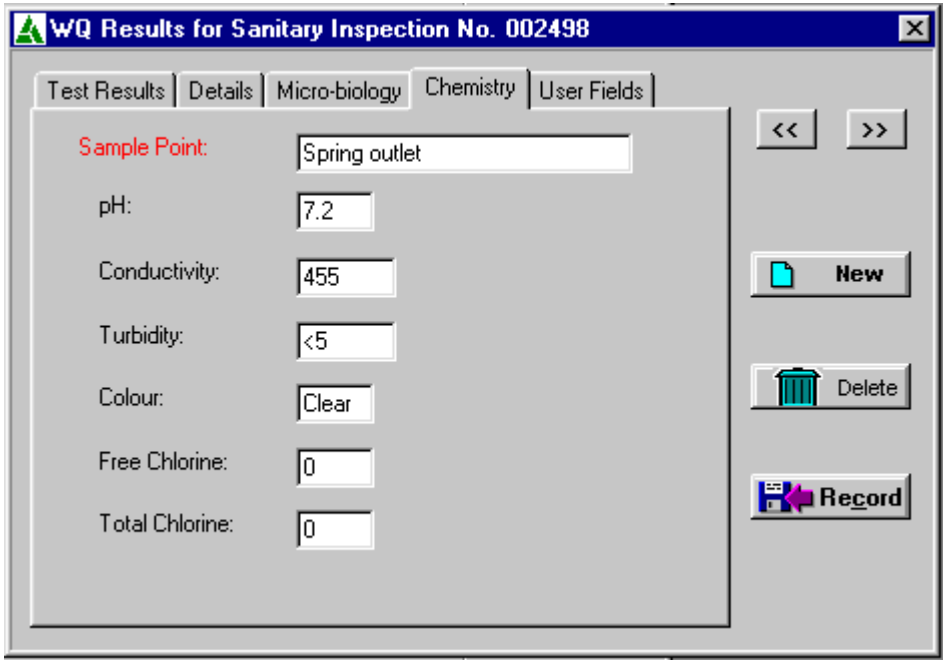
To add or edit or delete a water quality record first open the 'Sanitary Risk Inspection Form', (see Sanitary Risk Inspection Records). Click the '**W.Q.**' button, this will open the 'WQ Results for Inspection No.' window to appear. This window is a tabbed dialogue window. Initially when the window is first opened, the 'Test Results' tab is the current tab. This displays all of the WQ records in a tabular fashion. Other tabs include 'Details', 'Micro-biology', 'Chemistry', and 'User Fields'. To select any of these tabs, click the mouse on the tab heading.



To add water quality data, first press the button labelled 'New'to add a blank record**.** SanMan will automatically assign a new sequential WQ test number to this record. First of all, you need to put in information about the test. After clicking the 'Add' button, SanMan will switch to the details tab and a new window will appear with two controls: Sample point and, WQ notes.

In the sample point control type in where the sample was taken from. This may be the spring outlet on a protected spring, hand-pump from a borehole or well or the name of the owner of the tap-stand if piped water is sampled. There may be other sampling points such as in the well or reservoir etc. The main purpose of the information entered into this field is to ensure that the sample point is properly identified. This will facilitate repeat sampling on future sanitary inspections to allow results to be compared. You can then put in any notes about the sample such as whether the water outlet was flamed, the volume tested, the time of sampling, preservation of sample etc. Any additional information you may feel is relevant can be put into this box.

Once the details have been completed, click on the 'Micro-biology 'tab and enter the data for any microbiological analysis performed on the sample. SanMan records results as number of colonies per 100ml. If a sample volume of more or less than 100ml was tested, it is essential that that the actual numbers of colonies counted is converted to count per 100ml before being entered into SanMan. For example if a 25ml, sample volume was tested, multiply the number of colonies counted by 4. If a 250ml, sample volume was tested, divide the count by 2.5, (round any decimal fractions to the nearest whole number). **Do not enter a zero for any microbiological parameter not actually tested.** This would distort any statistical analysis since zero is a legitimate result in microbiological testing.



After entering the microbiological results, click on the 'Chemistry' tab and this will bring up the window where you can enter physico-chemical data. Provision is made to store test data on pH, conductivity (in micro-siemens/cm), turbidity (NTU), colour, free and total chlorine. If you forget what units are required simply move the mouse pointer over the control, this will pop-up a help balloon prompt for that control. If you do not have test data for all the parameters simply leave the controls for those parameters blank.

SanMan allows you to store data for up to six user definable parameters. Before you can use this feature you must first define what parameter you wish to store, (see 'Setting User Definable Fields' below). If these have already been set up, click the 'User Fields' tab and enter your test data.

To review or edit other WQ records associated with the R.I. record you can use the two buttons at the top right of the window to move forwards or backwards through the WQ records.

Finally click the '**Record**' button to close the window, save your results and return to the 'Sanitary Risk Inspection Form' window. The faecal coliform statistics will automatically be updated. These statistics will also be available when in the sub-form of the WSS record when you close the inspection form. This allows you to compare results collected over a series of sanitary inspections.

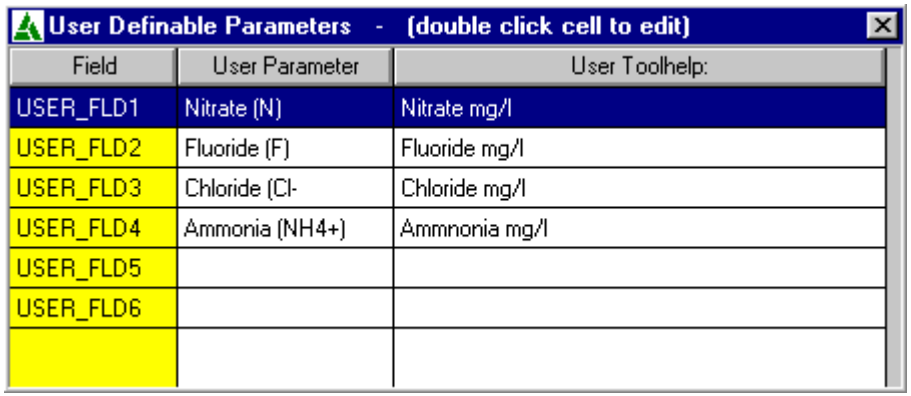
Setting User Definable Fields

The database has space for 6 user variables at present and these are variables that are not part of the WHO critical parameters or possibly frequently monitored. The user defines what data they want to record and the units for the data. Select the **'User Definable WQ Parameters'** item in the **'File'** menu or press the **<Ctrl> + <W>** hotkey combination. This opens the 'User Definable Parameters' window. In the illustration below, 4 of the 6 available fields have already been defined. Position the mouse pointer on the 'User Parameter' cell of the row containing the first available field, (in this example row 5, column 2). Double click the left mouse button to begin edit mode, type in the text for your parameter then click any other cell to leave edit mode. Repeat this process to type any help or prompt e.g. the units of measurement into the adjacent cell, (in this example, row 5, column 3.

Please note:

Once a user field has been defined, SanMan will assume that all results entered into that field in the WQ record, is for the parameter defined.

If you later decide to change the field to a different parameter, this will mean that the existing data is also regarded as data for this new parameter. Therefore, please take care when defining and re-defining variables and be aware that changes in the variable may mean having to delete data already entered**.**

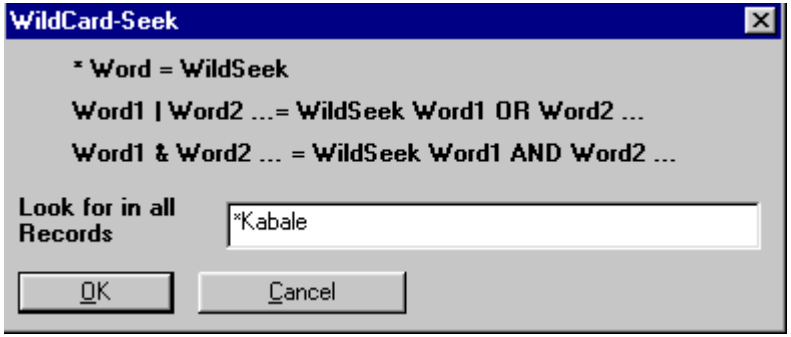


Locating Records

As the data tables grow in size, it will become increasingly difficult to quickly locate a particular record by skipping through the records or even using the browse view for that matter. SanMan comes with the facility to search for any character string embedded in any of the fields in the data tables or to limit the records displayed by imposing a filter or query criteria to the data.

Locating records with WildSeek

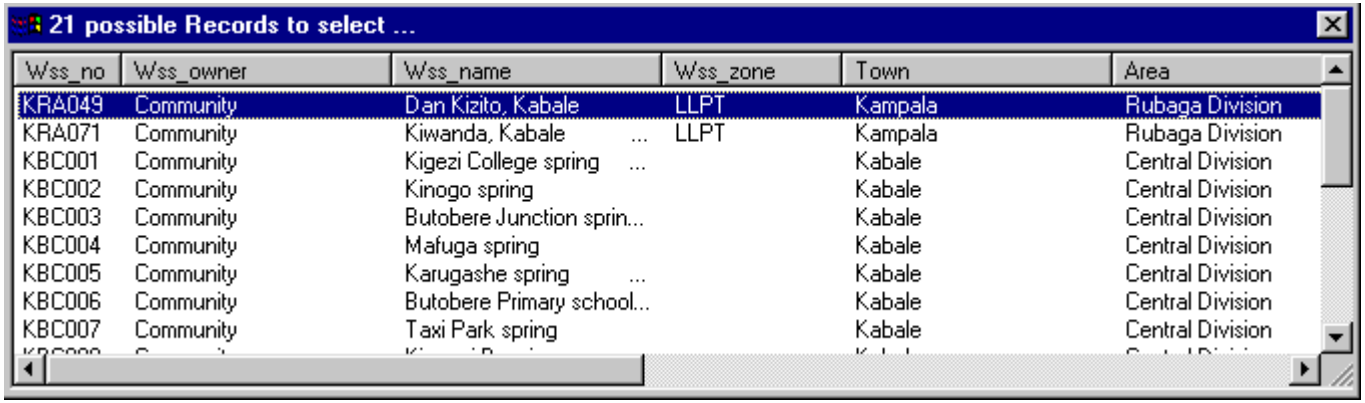
The simplest and quickest is the 'Wildseek'. You will normally use this facility to locate a water supply record (WSS) that you wish to enter sanitary risk inspection data to. Click the wildseek button, (see illustration left) or select the '**Wildseek**' item in the '**View**' menu.


WildCard-Seek
* Word = WildSeek
Word1 | Word2 ...= WildSeek Word1 OR Word2 ...
Word1 & Word2 ... = WildSeek Word1 AND Word2 ...
Look for in all Records
*Kabale
OK
Cancel

This pops up the 'WildCard Seek' dialogue window. There are 3 types of wildseek available:

1. Find records containing a single word or fragment of a word - *Word
2. Find records containing **any** word or word fragment from a list of two or more words - Word1 | Word2 | Word3
3. Find records containing **all** words or word fragment in a list of two or more words - Word1 & Word2 & Word3

In the example, any records containing 'Kabale' will be located and displayed in a list window. Scroll through the list to highlight the record of your choice, then press the **<Enter>** key or double click the row with left mouse button, to move directly to that record. If we had entered 'kabale' | (or key next to the 'Z' key) 'Entebbe', records for both these towns will be listed. Alternatively if we had typed 'kabale' & 'LLP' only the first two records in the illustration left would have been listed.


21 possible Records to select ...
Wss_no Wss_owner Wss_name Wss_zone Town Area
KRA049 Community Dan Kizito, Kabale LLPT Kampala Rubaga Division
KRA071 Community Kiwanda, Kabale ... LLPT Kampala Rubaga Division
KBC001 Community Kigezi College spring ... Kabale Central Division
KBC002 Community Kinogo spring Kabale Central Division
KBC003 Community Butobere Junction sprin... Kabale Central Division
KBC004 Community Mafuga spring Kabale Central Division
KBC005 Community Karugashe spring ... Kabale Central Division
KBC006 Community Butobere Primary school... Kabale Central Division
KBC007 Community Taxi Park spring Kabale Central Division

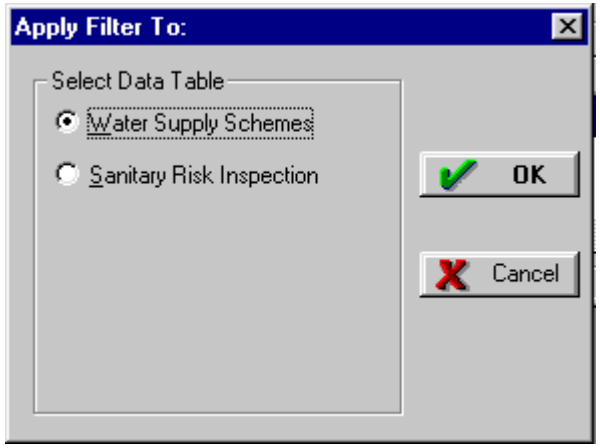
The search is not case sensitive, so you can type in upper or lower case.

Repeating the last WildSeek

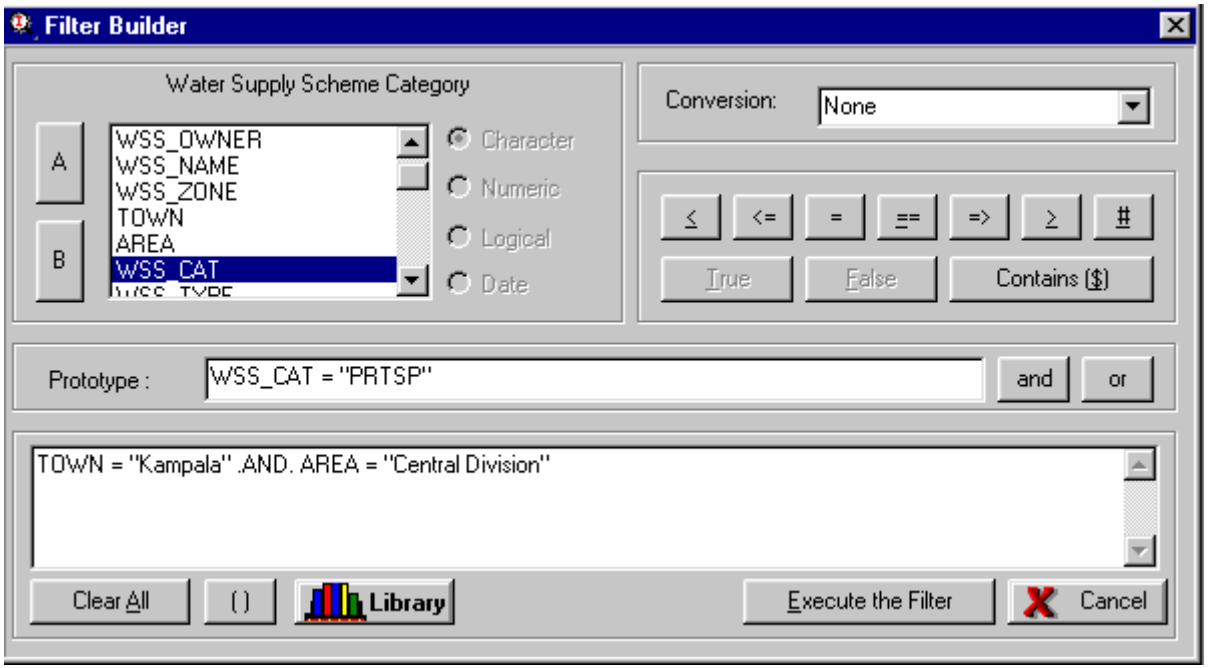
If you wish to review the list displayed as by a previous wildseek, we can quickly recall the list box by clicking the repeat wildseek button.

Applying a filter to the data table

Some time you may wish to work with a group of related records say all WSS records in a particular area or town. SanMan allows you to do this by allowing you to build a filter or query expression that you can apply to the data table. When you apply a filter only the records that match the filter will be visible and the remainder will be hidden. To apply a filter to the WSS table, click the filter button in the toolbar or select the **'Filter Data'** item from the **'View'** menu.



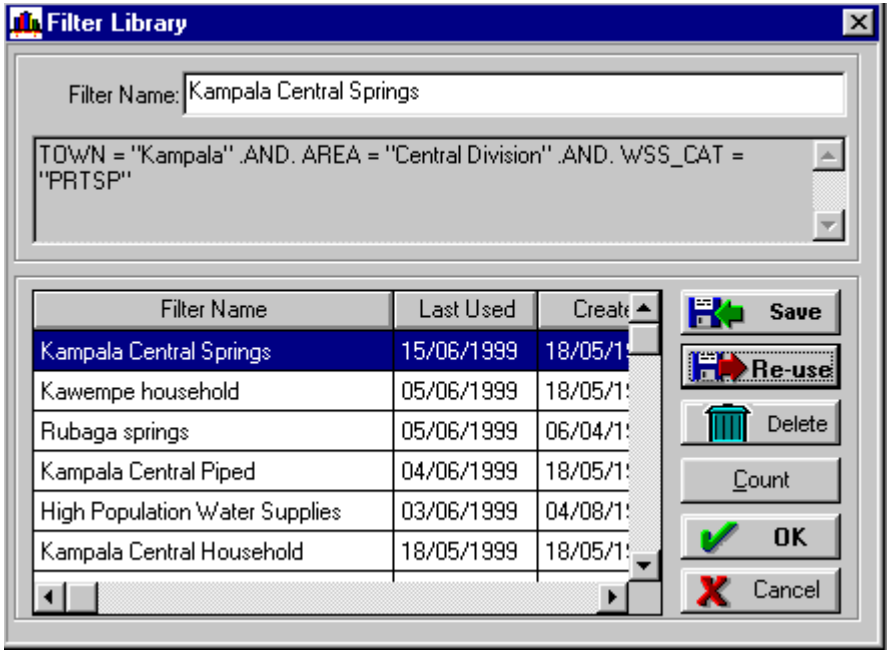
This displays the 'Apply Filter To:' dialogue window. Click one of the two radio buttons to select which table the filter should be applied to. For this exercise let us assume we wish to view all data for protected springs in Central Division in Kampala. Click the 'Water Supply Schemes' radio button. This brings up the 'Filter Builder' dialogue window.



This window allows us to construct the filter expression, (an expression can be simple or complex). From the list of variables which appears on the screen, first select 'Town' and click the < = > button to the right and insert the text **'Kampala'** with the speech marks in the box, then click on confirm. Then click the button marker <B> and select 'Area', click the < = > button and type in **'Central Division'** in the speech marks. Then click the <and> button. Then click 'B' and select

WSS_Cat, click < = > button and type in **'PRTSP'** and click the <and >button. Finally, click on the <Execute the Filter> button to apply the filter expression. When the filter is applied, SanMan will behave as if the data table only contains those records matching the expression. Skipping through the records will skip over any records that do not satisfy the filter expression. To learn the purpose of any of the buttons, display a help/prompt by moving the mouse pointer over the button and keeping the pointer stationary for a couple of seconds.

Saving and reusing a filter



If the filter expression is one that you will use again, you can save it in a library of filters. By saving it we can quickly re-apply the filter without having to reconstruct it. To save a filter, click the <Library> button before you click the <Execute the Filter> button.

Type a suitable name in the 'Filter Name' control, (in the example 'Kampala Central Springs') and click the <Save> button. Next click the <OK> button which passes the filter expression back to the 'Filter Builder' window. Finally click the <Execute the Filter> button.

To recall a previously saved filter, open the 'Filter Builder' window, click the <Library> button, highlight the row containing the filter that you wish to reuse. Click the <Re-use> button, the <OK> button and finally, the <Execute the Filter> button.

To delete a filter, select the filter as described and then click the <Delete> Button.

Clearing a filter

To clear a filter so that all the WSS records are visible, simply click the clear filter button in the toolbar or select the '**Clear all Filters**' item in the '**View**' menu. When can apply a filter to the R.I. table, all the WSS records will be visible but only the inspection that satisfy your filter expression will be visible in the browser sub-form.

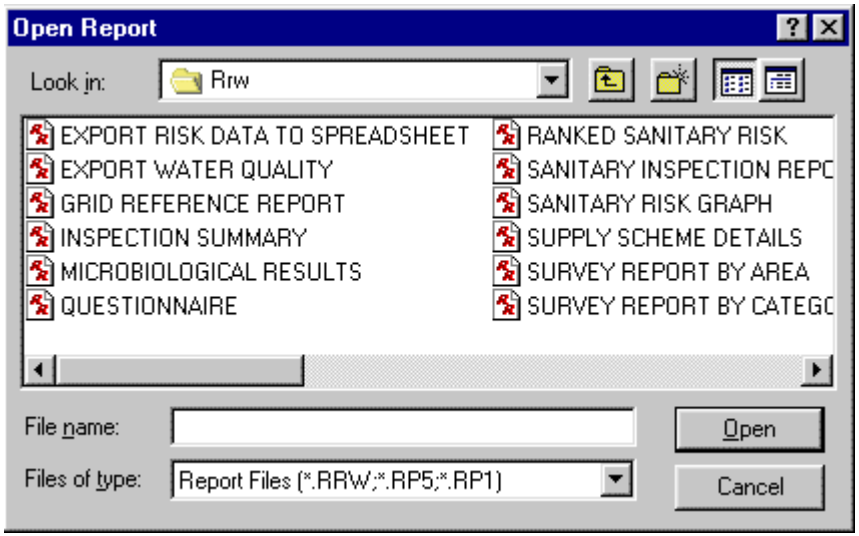
Reporting

The reporting features in SanMan are one of its main strengths. It's in the reports that the number crunching is done. Output is presented in a fashion that will hopefully allow you to better understand what is happening with your water supply schemes. The following is a table listing the reports available.

Table: SanMan Reports

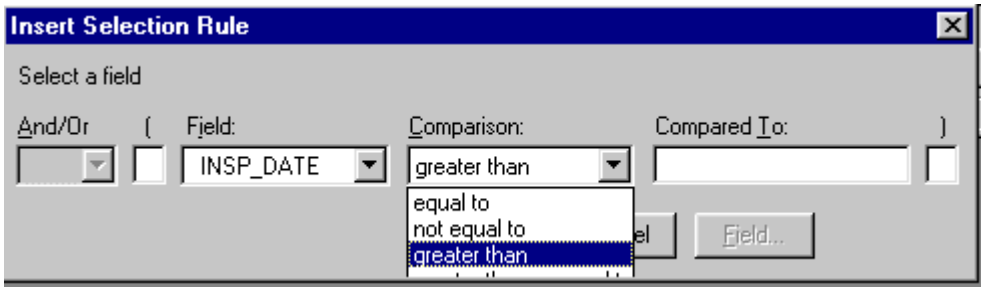
Report Name	*Report Purpose*
Export Risk Data to Spreadsheet	Export data sanitary risk inspection data to a spreadsheet, (for statistical analysis or graphing etc)
Export Water quality	Export water quality data related to inspections to a spreadsheet
Grid Reference Report	Lists grid references for all WSS, groups data by Area then alphabetically by town
Inspection Summary	Summarises how many sanitary risk inspections have been carried out in each town, (no:, first and last)
Microbiological Results	Lists microbiological and chlorine residuals grouped by WSS_No then by inspection date
Questionnaire	Prints the questionnaire used to inspect each category, (printed one per page)
Ranked Sanitary Risk	Analyses which WSS are at greatest risk grouped by area based on the latest inspection results in any given period
Sanitary Inspection Report	A complete report for each inspection carried out, (printed one per page)
Sanitary Risk Graph	Displays sanitary risk score data for all inspections of each WSS as a bar graph
Supply Scheme Details	All Information about each WSS, e.g. name, owner etc. (printed one per page)
Survey Report by Area	A listing of defects and microbiological results grouped by Area, Wss_No: and listed in descending date order
Survey Report by Category	A listing of defects and microbiological results grouped by sanitary risk category sorted by WSS_No: and in descending date order. Analyses the frequency of occurrence of each defect
Water Quality Results	Complete water quality results for each WSS and in order of date inspected
WQ Sampling Locations	List all water quality sampling location for each WSS grouped by scheme

To run any of the reports listed (except Risk Ranking Report which has its own report menu item), select '**Pick from List…**' item in the '**Reports**' Menu or press the **<Ctrl>** + **<R>** hotkey combination.



The first window to appear is the 'Open Report' window. This window displays all the reports currently available listed in alphabetical order. Use the horizontal scroll bar to display all the reports. To run a report, first highlight the report by clicking it with the mouse and then clicking the <Open> button. Alternatively double click the report.

The next window to appear is usually the 'Insert Selection Rule' dialogue. SanMan uses R&R Report Writer software for all its reports. R&R comes with its own query powerful builder, (similar to the filter builder).



As more and more inspection data is entered into the database, you will probably wish to confine reports to certain criteria, for example data falling within a specific time period. Using the 'Insert Selection Rule' dialogue allows you to be very selective in what data you wish to report on, (see 'Creating Report Queries'). You do not have to use a query if you want a report on all the available data simply click the <OK> button.

The next window to appear is the 'Report Destination' dialogue. This has 3 radio buttons one for screen, printer and export. The export option is intended when you want to export the report output to say a spreadsheet. You would normally only use this option for the reports with the word 'Export' in their title.

For destinations other than Export, you will finally be presented with a 'Select Printer' dialogue where you can select from any printer attached to your system. To accept the default printer simply press the <OK> button. For reports sent to Export, Select the spreadsheet option and give a file name and destination on your hard disk, where the file should be created. The default extension to the file name is WKS, which is a Lotus spreadsheet. If you supply the name a full stop followed by the extension XLS, this will create a spreadsheet that can be opened directly in Excel.

The Report Window

When you send a report to the screen, the report will more than likely consist of several pages of output.

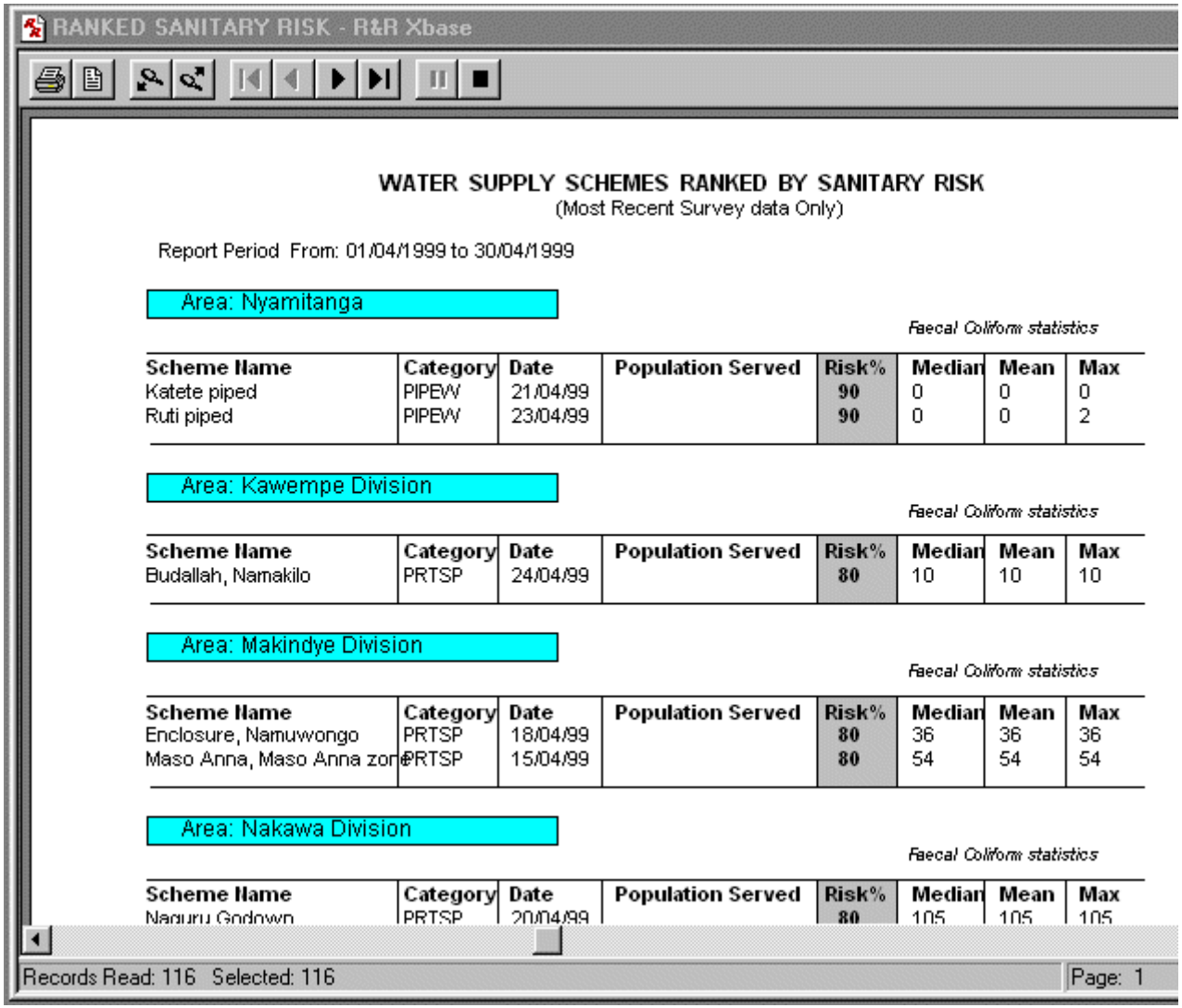
Use the buttons in the toolbar with arrow icons to move between pages.

To print the whole report, click the toolbar button with the printer icon.

To print the current page that you are viewing, click the toolbar button with the page icon.

To change the report magnification, click the buttons with the magnifying glass.

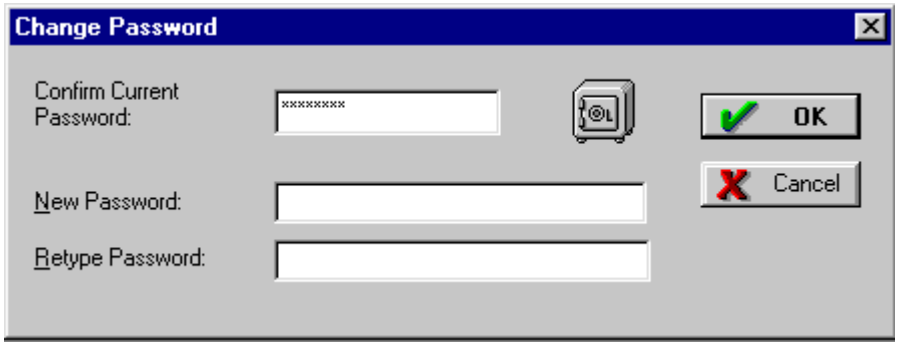
To close the report, click the toolbar button with the black square icon.


RANKED SANITARY RISK - R&R Xbase
WATER SUPPLY SCHEMES RANKED BY SANITARY RISK
(Most Recent Survey data Only)
Report Period From: 01/04/1999 to 30/04/1999
Area: Nyamitanga
Faecal Coliform statistics
Scheme Name | Category | Date | Population Served | Risk% | Median | Mean | Max
Katete piped | PIPEW | 21/04/99 | | 90 | 0 | 0 | 0
Ruti piped | PIPEW | 23/04/99 | | 90 | 0 | 0 | 2
Area: Kawempe Division
Faecal Coliform statistics
Scheme Name | Category | Date | Population Served | Risk% | Median | Mean | Max
Budallah, Namakilo | PRTSP | 24/04/99 | | 80 | 10 | 10 | 10
Area: Makindye Division
Faecal Coliform statistics
Scheme Name | Category | Date | Population Served | Risk% | Median | Mean | Max
Enclosure, Namuwongo | PRTSP | 18/04/99 | | 80 | 36 | 36 | 36
Maso Anna, Maso Anna zone | PRTSP | 15/04/99 | | 80 | 54 | 54 | 54
Area: Nakawa Division
Faecal Coliform statistics
Scheme Name | Category | Date | Population Served | Risk% | Median | Mean | Max
Naguru Godown | PRTSP | 20/04/99 | | 80 | 105 | 105 | 105
Records Read: 116 Selected: 116
Page: 1

System Administration

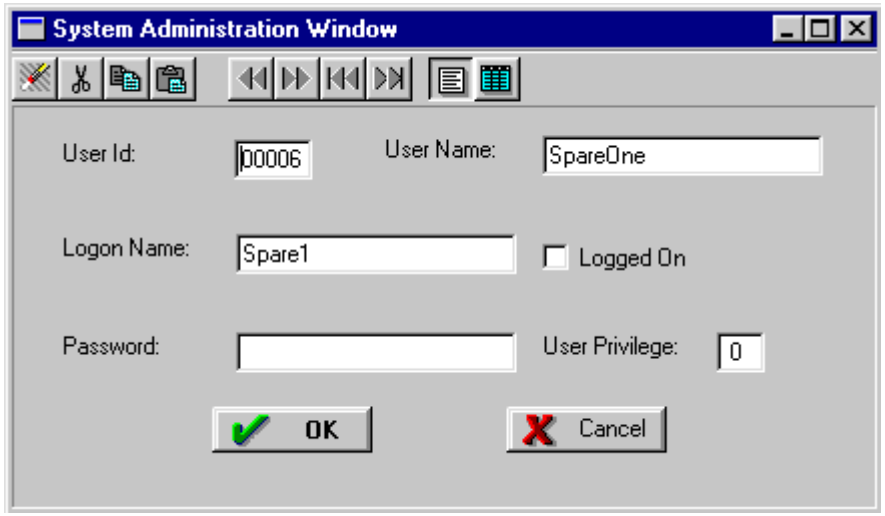
Like any office system SanMan periodically requires some housekeeping. Data tables can become corrupted particularly if SanMan is not closed before turning off the power to the PC. The only sure safeguard to protect the data is to make regular copies or backups using the backup software supplied with your operating system. This way if a file becomes corrupted we can minimise the damage by reverting back to a recent copy or backup. Particularly at risk are the index files associated with the data tables, but corruption of the index files is easily recovered by recreating the index from scratch. These and some other tasks such as assigning users and access privileges are the responsibility of the system administrator. One item that may be of interest to any other user is the ability to change their password to something of their own choice.

Changing Password



To change a password select the **'Change Password'** item from the **'Utilities'** menu. This opens the 'Change Password' dialogue. Type your existing password into the 'Confirm Current Password' control. Immediately you have entered a valid password the safe icon will change to an icon with an open safe door. Next type in the new password you wish to use, tab to the next control and re-enter the new password exactly as before. If you make a mistake SanMan will show an error message. Finally click the <OK> button to instate the new password or the <Cancel> button to revert back to the old password.

Setting New User Accounts



Only the system administrator (SA) can set up user accounts. To call up this feature, select the **'System Administration'** item in the **'Utilities'** menu. This opens the appropriate dialogue window, use the navigation buttons to the record you wish to change. Do not change User ID, type in the user's name e.g. 'Joe Bloggs', assign the user a name to logon with e.g. 'JBloggs' or 'BatMan', leave logged on unchecked and give the user a password. Finally assign an access privilege (1 - 10), where 10 is the highest (system administrator) and 1 is the lowest. To help you decide what number to assign, see the section on 'Access Privileges'.

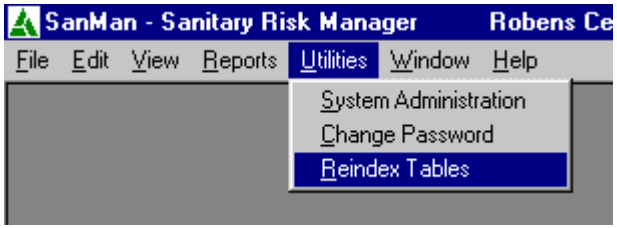
Access privileges

The following table shows the existing user restrictions:

Table: User Restrictions

SanMan Activity	Minimum Privilege
System Admin	10
File Open	10
Delete WSS	10
Delete Pick Item	10
Define Questionnaire	8
Edit Key Field	8
Edit Pick Item	8
Define user Fields	8
Re-index Tables	8
Run a Report	7

Re-Indexing Data Tables



It is a good idea to recreate the index files from time to time, (minimum weekly). If you cannot locate a record that you are sure has been entered then this should be your first port of call. Immediately on Starting SanMan one of the first things to happen is that it looks to see if all the index files are present. If any are missing, SanMan automatically recreates the missing index files. To manually re-index the data files, select the '**Reindex Tables**' item in the '**Utilities**' menu. SanMan deletes the old indexes and then recreates them. The index files can only be created if SanMan can get exclusive access to the data tables, (only one user logged on). If other users are logged on it will inform you. If you are absolutely certain you are the only user, run the System Administration to check if any user, (other than yourself), has a logged on status, if so reset this and then try again.

Direct Access to the Data Tables

It may be necessary under exceptional circumstances that a data has been entered wrongly and that the situation cannot be corrected directly using SanMan. The only way to correct the mistake is to directly edit the data tables. When you do this you are given a free hand to do exactly as you please. All the restrictions that Sanman impose about duplicate fields, changing key fields and deleting records are removed. Hence, this is not something that should be undertaken if you are unsure what you are doing. For example, you could change the WSS_No: in the WSS table and in doing so severe all the links to the inspection records for that water supply.

Do get access to any data table, select the **'Open…'** item in the **'File'** menu. A dialogue window will appear listing all the data tables used by SanMan. Select the file and click the **<Open>** button. The table will be opened in a standard data window with all the normal controls.

Caution!

Be very careful when you edit any fields that are used to link to other data tables.

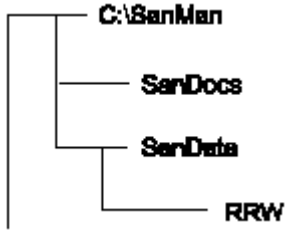
These Include:

- **WSS_No** — **used to link WSS table to INSPECT table**
- **INSP_No** — **used to link INSPECT table to WSQ table**
- **WSS_CAT** — **used to link CATEGORY table to WSS table**
- **WSS_TYPE** — **used to link STYPE table to WSS table**
- **POP_BAND** — **used to link BAND table to WSS table**
- **AREA** — **used to link AREA table to WSS table**
- **TOWN** — **used to link TOWN table to WSS table**

Backing up the Data

Developing a backup strategy is something that is absolutely vital. It is important to anticipate that a disaster could happen, (you PC may be stolen) and to have a recovery plan available that can get you quickly running again. This involves making copies or backups of the data. It is not within the scope of this manual to discuss how to use backup software. What will be explained here is what you need to back up.

When you install SanMan it will normally create the following folder structure.



You may have installed SanMan on a drive other than **C:** or into a folder other than 'SanMan'. If you are running SanMan on a workstation linked to a local area network (LAN), the SanData and RRW folder will likely reside on the hard disk of your server. What you will need to backup are all the files in the SanData folder wherever that folder may reside.

A good backup strategy is to have:

Five disks for every day of the week, (labelled Mon - Friday used on a daily basis)
Three Disks for Weeks 1 to 3 (use on the last day of every week)
One disk for Month End (use at the end of the month)

When disaster strikes start with the latest backup set and restore these files to your data folder, (don't forget to allow overwrite of newer files with older files when restoring). If this does not cure the problem work backward through your backups until you solve any problems. Obviously the further back you go, the more data you will have to re-enter to get back up to date. If you are using floppy diskettes they have a habit of becoming unserviceable, so every couple of months introduce fresh disks into the cycle. Of course if you have a Zip drive or a Tape unit then you can backup directly to these devices.